Johnson (J. T.)

Can the Cæsarean Section be safely substituted for Craniotomy in the United States at the Present Time?

BY

JOSEPH TABER JOHNSON, M.D.,

PRESIDENT OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

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CAN THE CÆSAREAN SECTION BE SAFELY SUBSTITUTED FOR CRANIOTOMY IN THE UNITED STATES AT THE PRESENT TIME?

Much interest has been excited of late in the improvements which have been made in the ancient and time-honored operation of the Cæsarean section. To Dr. Harris, of Philadelphia, are we mostly indebted for this revival of interest. He has repeatedly pointed out that this operation, which, in the past, has been regarded as almost universally fatal to the mother, can now be performed with great safety, and with the result of saving more lives, when resorted to early, than by any of its alternatives. This statement is made by Dr. Harris after collecting the histories of a comparatively large number of cases in this country and in Europe. These remarkable results have been achieved by a few men, mostly in Germany, who have had a large experience in abdominal surgery, and who brought to their assistance the many improvements which a number of operators had been gradually making, in different parts of the world, in the Cæsarean section for many years. These successful operations have aroused the enthusiasm of a few writers to such a degree that they have been led to declare, with great fervor, and an eloquent display of statistics, that craniotomy upon the living fœtus would hereafter be unjustifiable, and that the improved Cæsarean section must not only be the operation of election in the future, but of nece ssity also. Thus Dr. Meadows, of London, within the past three months, in a paper read before the British Gynecological Society, upon "The Total Abolition of Craniotomy," was so carried away with the wonderful and surprising figures of Dr. Harris, that he exclaimed, in a sudden burst of enthusiasm: "Where, I ask, is craniotomy now?" Dr. Meadows quite convinced himself, but, according to the record, none of his audience, that craniotomy should be forever abol-

ished from the list of justifiable operations. It was generally agreed, in the discussion which followed, that the best thing ought to be done; that whenever the Cæsarean section offered the best chance it should, of course, be urged upon the family, but that there would always remain a certain small proportion of cases, mostly in primiparæ, where craniotomy would have to be performed.

When this subject was discussed in another society, in our city, two years ago, I took the ground strongly that past experience, as well as the teaching of nearly all the text-books in use by the colleges, declared that craniotomy, when indicated, should be considered the operation of election, and the Cæsarean section the operation of necessity.

In view of the growing success of "the improved Cæsarean section" abroad, and of my growing interest in abdominal surgery, I am inclined to change my views, exactly reversing the position stated above, making the Cæsarean section the operation of election, when possible. This, of course, leaves craniotomy as the operation of necessity; and when necessary, therefore, I would feel compelled to resort to it. I cannot agree with those writers who would entirely abolish it, and who denounce craniotomy as "child murder," as an "abominable crime," as that "murderous operation," as "killing the infant," as the "deliberate and cold-blooded murder of an unoffending child," etc. I think craniotomy, even upon the live child, *may become* a perfectly justifiable operation under certain exceptional circumstances.

Science advances, and as new facts come to our attention, and as the success of abdominal surgery strides on with such surprising and startling rapidity, we are entitled, without being considered inconsistent, to change our views, and to be convinced, by the onward march of events, that new practice, based upon late experience and improved statistics, may be better and safer than the old.

While I should be slow, as a teacher of obstetrics, to allow the writers in the ephemeral and frothy medical journals of the day to offset, with a few newly-acquired statistics, the crystallized teachings of the regularly authorized and recommended text-books,

new as well as old, for the guidance of students and practitioners of medicine, I should hail with infinite satisfaction any practice which would give to the mother a better chance for life than craniotomy offers, and at the same time, while not diminishing her chances, afford us an opportunity of saving the child also. I do not think it is sound practice to be governed by the mere statistical intent to save the greatest number of lives, without any reference to the value of those lives. The Cæsarean sectionists use an argument which sounds well, and which, for statistical purposes, would undoubtedly carry a point, and perhaps an audience; inasmuch as by the performance of the Cæsarean section more lives could possibly be saved for the census to record among the inhabitants of our country than as if craniotomy were sometimes done. Of course, 50 per cent. of the "lives involved" are lost, as well as a very small per cent. of the mothers, but I thought, when I heard an argument some time ago upon this subject, that the speaker rather strained a point, when he added the 50 per cent. of the already dead or sacrificed fœtuses to the ascertained mortality to the mothers, of the craniotomy operation. I doubt if every one would stop to think about the unborn children, when the mortality of craniotomy would be stated, upon this basis of calculation, to be 50 per cent. higher than the deaths of the mothers would properly place it. Thus, of 100 craniotomies, if the mortality should be stated to be 60 per cent, the general reader might think that sixty of the mothers had perished as a result of the operation; when, according to this mode of making statistics, the statement would mean the death of fifty fœtuses and only ten mothers.

We cannot, as conscientious physicians, be bound in our practice by cast-iron rules, whether they are medical, ethical or theological. As long as the good Lord continues to make human beings to differ so widely from each other, just so long shall we be compelled to judge each case by its own peculiar symptoms, environment, vital force, extent of deformity or obstruction; and be governed to some degree by the wishes of the patient who engages our services.

This is a free country and we, of course, have the

inalienable right to refuse to remain responsible where our advice is rejected. But the patient has the same right to refuse to have an operation done which gives her so little chance of recovery as even the improved Cæsarean section does in this country.

If we are in attendance upon a case of midwifery which lasts longer than twenty-four hours, where the powers of the patient are showing positive signs of failure, where the forceps have been tried a number of times and failed, where the head is too far down to resort to version, and where, in order to save the now rapidly sinking mother, a corps of consulting physicians submit to the agonized husband and wife the sad alternative of craniotomy or some modification of the Cæsarean section, and they refuse to permit a cutting operation to be done—what is the attending physician to do? Suppose he has bound himself by some cast-iron rule, or allowed somebody else to bind his hand and his conscience for him, never, under any circumstances, to destroy what little life is left in the long compressed and nearly lifeless unborn fœtus—is this woman (who has engaged this physician to see her safely through her labor) to be left in jeopardy while the fœtus is given the precious hours, to become unmistakably dead, which may decide adversely the fate of the mother also! Those who would refuse to do craniotomy upon the live child, but would be willing to do it if the child were surely dead, will sometimes, while obeying their cast-iron rule, let the mother slip through their fingers also. I should hold with Barnes upon this point, who says, on page 845 of his Obstetric Medicine and Surgery:[1] "On the continent especially, it is still urged by some to wait until the child is dead. If it be admitted—and the conditions of the case involve these postulates—1, that the child cannot come through alive; 2, that the operation is undertaken in order to save the mother, waiting till the child is dead is opposed alike to reason and to humanity. It seems a refinement of casuistry to distinguish between directly destroying the child, and leaving it exposed to circumstances which must inevitably destroy it, and it is risking the very object of

[1] Published in 1885 [only last year].

our art, to wait for the lingering death of the child until the mother's life is also imperilled."

In speaking of the Cæsarean section, on page 855 same work, Barnes says: "If the operation could be done at a chosen moment, and so improved as greatly to increase the probality of saving the mother, then the already high probability of rescuing the child might turn the scale in favor of the Cæsarean section and against craniotomy. Unfortunately, art has not yet reached this point. The mortality to mothers from the Cæsarean section is still so great, whilst that from embryotomy, in fitting cases, is so small, that we are unable at present to raise the Cæsarean section to the rank of an elective operation."

In view, however, of the success of the improved Cæsarean section, I should be inclined to hold with those who would, if they could, raise the Cæsarean section to the rank of an elective operation; but we should hold ourselves free, in case this elective operation were not elected by those who had the right to vote, to perform craniotomy, upon the live child even, if we believed that by doing so we could save the mother. I should agree with Lusk, 1885 [Science and Art of Midwifery, p. 425] that "If in any case the decision is left to the physician, he should regard the welfare of the mother as of paramount importance. . . . The duty of the physician is, however, to his patient. He is not to constitute either judge or executioner."

As the work of Prof. Parvin has been published within the past month, it may be of interest to record his views as the latest authoritative statement from an American stand-point. Professor Parvin says, upon page 650 of his book:[2] "Some, indeed, have had so strong a repugnance to directly sacrificing the life of the child, that they have done it indirectly, waiting until it died before resorting to the operation; thereby in no sense evading the responsibility for its death, and, at the same time, this delay has added to the perils of the mother.

"The principle of morals upon which most obstetricians rest the right to sacrifice the child for the sake of the mother is a very old one, and has met with general acceptance. That principle, clearly enunci-

[2] Science and Art of Obstetrics.

ated by Cicero, for example, and sustained, in general, by moralists of all ages, is, that if two lives are in such peril that both cannot be saved, but one will be, by the sacrifice of the other, let that life which is of the least value to the State or to society perish. It is unnecessary to show that the adult woman, with her various domestic and social duties, has a life of greater value than that of the unborn child, and therefore, while the duty of the obstetrician is to save both when he can, if either is to be sacrificed, let it be that of the latter—in other words, if, in a given case, embryotomy is a less risk to the mother than Cæsarean section, the former should be selected. This is a rule of obstetric ethics which cannot be set aside."

There is an element of unfairness in comparing the statistics of craniotomy as given by Tyler Smith in his book, written as far back as 1858, and by Churchill about the same time, with the improved statistics of 1884–5–6 of the Cæsarean section, done under all the detail of the antiseptic methods, and in the light of all the wonderful improvements in abdominal surgery.

It is my belief that more *mothers* would be saved, and would be put to much less pain and in much less danger, by the "timely" performance of craniotomy, done under all the antiseptic precautions, than by the "timely" performance of the improved Cæsarean section, if we judge by recent reports of the mortality attending this operation in the United States. It is my belief, also, that more *lives* would be saved, if we include those of the unborn fœtuses, by the timely performance of the improved Cæsarean section than by craniotomy, and as the Cæsarean section is a much more conservative and clean surgical procedure than the "horrid and detestable operation of craniotomy," as it is now called by some, I should, with my knowledge of abdominal surgery, *greatly prefer to* do it. One of the chief points I am arguing against is, that it is cruel, unscientific, and impracticable to be bound by any inflexible rule in the management of these unfortunate patients. To "utterly abolish craniotomy," as recommended by Meadows and a few others, would leave us with our hands tied in some cases, and sub-

ject us to the mortification of being superseded by a physician who was governed more by the circumstances and necessities of this particular case, than by an unscientific prejudice. Our minds and hands should be free. Cases differ; people differ; obstructions differ; vital force, and the dispositions of patients, so differ that, as conservative physicians, we should act as the requirements of each case are presented to us. A timely and successful Cæsarean section, done before the patient had been exhausted by long-continued, various and unsuccessful efforts at delivery, cannot be fairly compared and quoted against an unsuccessful craniotomy, performed upon a woman who had been in labor several days, who had the forceps tried a dozen times by half as many doctors, who had completely exhausted themselves in their fruitless efforts to pull out the child, and finally, when they are worn out, in the middle of the night, perhaps, and by the aid of a tallow candle, with imperfect instruments, poor assistants and no antiseptics, they do a bungling craniotomy, through parts swollen, dry, and ready to lacerate or inflame.

It is no argument, in favor of always doing the Cæsarean section, because a woman succeeds in doing it upon herself with a carving knife, and closes the abdominal wound with sticking plaster. Neither is it just the thing to compare the marvelous results of Leopold and Sänger, in saving seventeen out of nineteen mothers, and all the children, by the improved Cæsarean section, when they bring to bear all their skill in abdominal surgery, have a corps of trained assistants and nurses scarcely less able than themselves, with craniotomy done under the circumstances just named, by inexperienced operators, and under the worst possible circumstances for success. Such comparisons are odious as well as incorrect. In the practice of medicine or surgery, it is very difficult to make correct comparisons, the cases are so dissimilar.

In Germany physicians can control the circumstances of their operations, and their patients, better than we do in this country. They have better and more opportunities to perform timely Cæsarean sections than we do in the United States. Having

more cases of pelvic deformity than occur in America, they have made more thorough and correct studies in pelvimetry than we have, and make their diagnosis and perform their operations earlier than we do, and consequently, I believe, save more of their patients.

An early diagnosis, and the consent of the patient and her friends, to an early Cæsarean section, is more than half the battle. One reason, I believe, for the unwillingness of these unfortunate women, and those directly interested in them, to have this operation done early, is the belief of their physicians, as well as their own fear, that the result will be fatal; and they delay, and resort to other and unavailable means, until they have frittered away golden moments which cannot be regained.

Dr. Harris reports that there has been done, in this country, 144 Cæsarean sections, saving fifty four or 37½ per cent. of the mothers; (and emphasis seems to be laid upon the point that sixty four children were living when delivered. Perhaps a dozen or more of those children were dead in less than a week, and perhaps only twenty or ten lived to grow up.) According to the same authority, the first fifty Cæsarean sections done in the United States saved 54 per cent of the women. The last fifty Cæsarean sections done in the United States has saved but 24 per cent., a progress in the wrong direction of over 50 per cent. Dr. Harris adds to this sickening statement the information that, "operations performed in good season, when the condition of the woman was favorable, have saved 75 per cent. of the cases in this country, and 80 per cent. of the children."

These facts must have been culled from a few isolated cases, inasmuch as the last statement of operations done in the last decade, and seven months added to it, "ending August 1, 1886, there were thirty-seven Cæsarean sections—saving only eight women, or 21 23 37 per cent." Thus, with all the improvements in antiseptic abdominal surgery, in the last decade of the 19th century, in the United States, nearly 84 per cent. of the women operated on died. So that, in our country, instead of the

statistics improving, they have been steadily growing worse and worse, as shown in the following late statistics and letter of Dr. Harris:

September 17, 1886.

Cæsarean operations of the United States	144
Women saved, 37½ per cent.	54
Children living when delivered	64
First 50 operations, saved 54 per cent.	27
Last 50 operations, saved 24 per cent	12
Operations for decade ending Dec. 31, 1855	25
Women saved, 48 per cent.	12
Children living	13
Operations for decade ending Dec. 31, 1865	24
Women saved, 45 5-6 per cent.	11
Children living	10
Operations for decade ending Dec. 31, 1875	36
Women saved, 27 7-9 per cent.	10
Children living	11
Operations for 10 7-12 years, ending Aug. 1, 1886	37
Women saved, 21 23-37 per cent.	8
Children living	16
Late operations, nearly 84 per cent. of this division	31

Operations performed in good season, when the condition of the woman was favorable, have saved 75 per cent. of the cases in this country, and 80 per cent. of the children.

It will be seen by this record that the number of operations is gradually upon the increase, and that the results are steadily becoming worse year by year. If we take the last five years—August 1, 1881, to August 1, 1886—we have nineteen operations, ending fatally in seventeen cases, saving but 10 10-19 per cent. Of the children, fourteen were also lost; of which two were destroyed by craniotomy, and one had its skull fractured by the forceps. In this list is not included an operation upon a moribund woman, performed in the interest of the fœtus.

This is a frightful picture! In fact, it makes one sick at heart, in view of the fact that Europe, by the Sänger method, has saved 78 per cent., or 26 women out of 33; and 31 children.[3] There has been very bad management somewhere, and I am inclined to believe that much lies in the fact that American obstetricians have not paid sufficient attention to pelvimetry, and are wanting in the skill that has been

[3] Medical News, Philadelphia, Sept. 18, 1886, p. 317.

acquired in the maternities of the old world, by which they first determine the possibilities of delivery *per vias naturales*, and finding the measure of obstruction, resort promptly to the knife without endangering the life of the woman by intermeddling and useless delay. ROBERT P. HARRIS.

Great stress has been laid by those who would always do the Cæsarian section, and never consider craniotomy justifiable if the child was not known to be dead, upon the recent successes in the Cæsarean section by the "Sänger method" in Germany. But Germany, unfortunately for this argument, is not the United States. To quote from recent authority in the October number of the *American Journal of Obstetrics*, page 1021, by Garrigues, who claims that the Sänger method should as properly be called by his name as by Sänger's, and further, that there is really nothing in this "method" after all, as the most successful operators get on better without using it—Garrigues says: "It is of particular interest to see that one operator, Prof. Leopold, of Dresden, has operated nine times, saving eight women and all the children. The two maternity hospitals, of Dresden and Leipzig together, have had sixteen operations with fifteen maternal recoveries, and the survival of all the children." This, I am glad to admit, is a most successful and glorious record, and one which American operators should strive to equal. But it is not fair or correct to state this phenomenal success as the present standing of the improved Cæsarean operation. You might as well quote the phenomenal success of Mr. Tait, in doing 146 ovariotomies without a death, as the present happy standing of ovariotomy throughout the world, and expect others to obtain the same results.

Garrigues evidently had this same thought in his mind when he wrote, less than a month ago, page 1021—"It is not to be expected that this record will be kept up to its present standard. So far, the excellent results are *due to the fact that* so large a proportion of the cases have been operated on by one man, and a still larger proportion by a few men, all intimately connected, all perfectly familiar with anti-

septic precautions, and skilful gynecologists. It is to be expected that when the operation becomes so popular that it is performed by many, and less well prepared operators, the results will again decline proportionately."

Garrigues says, "further, on the other hand, I am not prepared, with several authors, to teach that the improved Cæsarean section should be substituted for craniotomy, and to stamp, as an abominable crime, the destruction of the living fœtus, if by such a sacrifice, there is reasonable hope of a safe delivery for the mother. We must remember that similar antiseptic precautions to those upon which success in the new operation seems *exclusively to turn*, have benefited the operation of craniotomy."

Garrigues then refers to three recent craniotomies done by himself, two upon the living fœtus. All the mothers made an excellent recovery, and at no time presented any serious symptoms—one of them did not even have the slightest fever. In view of the recent successes in the Poro operation, I should feel disposed, in cases where there was a demand for the Cæsarean section, and the parties interested consented to have it done, to go still farther, and remove the uterus, or at least the ovaries and tubes, and thus make it forever impossible for the woman to be enviroued by the same dangers again.

It has been demonstrated that the success of repeated Cæsarean sections on the same person is greater than first operations, but is nevertheless, a dangerous procedure. I am convinced that the failure of the Cæsarean section to succeed in our country is largely owing to the fact that the operation is performed after the patient has been worn out by prolonged and useless efforts to deliver her. If physicians and patients only believed this operation was the best one to perform and that it should be done early, and that it did not mean sure death, as so many seem to think, this obstacle would be removed and the door opened to a more successful future. Until we can do better than to lose 29 out of the last 37 Cæsarean sections, in the United States, we cannot bind ourselves never to do craniotomy, even upon the living child. According to Harris, of the last nineteen op-

arations, (C. S.), seventeen of the mothers died. These nineteen Cæsarean sections were all done within the past five years, and fourteen of the children were lost, a not very brilliant show for American operators. Garrigues saved more mothers than this by doing his three cases of craniotomy. It cannot be claimed that the results would have been improved by the practice of the Sänger method, inasmuch as there have been five Sänger Cæsarean sections done within as many years in the United States, and every one of the women died promptly.

There is something radically wrong, I fear, in our teaching as well as in our practice. If we could control the circumstances and environment of our patients as surgeons do in Germany, I believe we could succeed as well as they do; but physicians as well as people will require a good deal of educating, evidently, before such a happy state of things will be reached in America. While therefore, I should greatly prefer to do the Cæsarean section and should consider it, if called in time, the operation of election, I cannot see that we have reached a position in this country, which would give us the right to "totally abolish craniotomy," and substitute for it at present, an operation which I have shown is so seldom successful as even the "improved Cæsarean section."

I subjoin as an appendix to my paper (with the kind permission of the author, Dr. Wm. H. Parish, of Philadelphia, whose entire article will appear in the forthcoming volume of the Transactions of the American Gyecological Society) extracts from that portion of his paper relating to the Cæsarean section in the United States, and also remarks of Dr. Robert Barnes on Dr. Meadow's monograph referred to above, and which I adopt as a part of my paper.

APPENDIX.

Let us now turn to the mortality attending all Cæsarean operations in the United States. Of 144 operations only fifty-four or 37½ per cent. of the mothers have recovered. Ninety mothers died out of 144 operated on, a truly frightful mortality.

But many of these operations were performed before abdominal surgery had attained its present high degree of success. Has the Cæsarean operation profited by the conceded recent surgical advances? Let us see: Of the fifty operations first performed in the United States, twenty-seven of the mothers, or 54 per cent. recovered; and of the last fifty operations, only twelve of the mothers—*i. e.*, only 24 per cent. recovered. The mortality has steadily increased during recent years, until of thirty-seven women last operated upon, twenty-nine have died; and of the last nineteen operations, seventeen of the mothers have died—a horrible mortality! In these nineteen last cases, all occurring during the last five years, there were fourteen dead children. In the last nineteen Cæsarean sections, then, there were only two mothers saved, and only five children survived. Should not American surgeons and obstetricians hang their heads in shame at such a showing? Is it not time that we should look into the reasons for such shameful fatality following this operation in this country? The results in Europe show with certainty that such terrific mortality is not inseparable from the operation, when rightly done under proper conditions.

The two prime factors in producing such fatality are, doubtless, delay in performing the operation, and the attempts made at other methods of delivery before making the section. Look at the number of children dead, when the operation began! The death of the child could not have been due to the operation, but must have been produced prior to its performance. Of the 144 operations, eighty children were dead. What caused their death? Quite certainly, either manual or instrumental interference, or prolonged uterine contraction. The eighty dead children mean eighty cases either of prolonged labor, or of injudicious interference in some other way by the physician. Eighty dead children mean eighty cases in unfavorable condition for the operation. Notice that there were eighty dead children and ninety dead mothers. How nearly the numbers correspond!

The mortality in this country is attributable largely,

then, to delay in operating, or to attempt at delivery with forceps, by version, or by craniotomy. Why this delay, and these injudicious resorts to other methods of delivery? First, The profession has been educated to believe that the operation is almost necessarily fatal; and statistics have been quoted to prove its terrible mortality. We have also taught, in text-books and in lecture halls, that the Cæsarean section is not an operation of election; it has been declared by authority to be the most dangerous operation in surgery. The practitioner has been demoralized into great dread of it; and he is prepared to undertake any other measure first. I have heard a once prominent teacher, now deceased, instruct his large classes, in cases of deformed pelvis, if in doubt: first to try the forceps, and if unsuccessful, to try craniotomy; and if this fails, then to try the Cæsarean operation. It would be equally, or more rational, in the management of an ovarian cyst: First, to try tapping; and if the cyst refilled, to try injecting with iodine; and if not then successful, to try drainage of the cyst; and if that failed to perform ovariotomy.

The delay is not, however, dependent solely upon the dread of the operation: It has frequently resulted from failure to recognize early the degree and character of the obstruction. In the United States large cities and large maternities are few, and medical schools are numerous, and the lectures are too limited in time, and students are taught but little of pelvic deformities and of obstruction in the soft parts. Pelvimetry is almost a closed book, and most young men, entering into private practice, have never seen even a normal labor, nor measured a pelvic canal. Is it surprising that, even later in life, they often cannot determine the degree of pelvic contraction, or of obstruction, when such exists? They cannot recognize the indication for the Cæsarean operation, hence, in part, the delay; or resort to forceps, version, or craniotomy.

The recent European success cannot be ascribed solely to the Sanger method of treating the uterine wound. Notice that in thirty-three operations by this method, in Europe, thirty-one children were

saved. What does this indicate? It demonstrates that the operations have been performed early in labor; that forceps, version, and craniotomy had not been resorted to. It demonstrates that the obstetrician recognized promptly the degree of contraction, or character of obstruction; saw the indication and had sufficient confidence in the result to resort at once to Cæsarean section. The saving of 78 per cent. of the woman, under the Sänger method, does not mean that this result was attained merely because of that invaluable method; for in this country there have been five Sänger operations, and all have terminated fatally.

I submit that, in this country, we must recast our views and our teachings as to the dangers attending the Cæsarean operation, and as to the indications for its performance. Medical students must be instructed more fully in the recognition of degrees of pelvic obstruction, so that it will not be necessary for the physician to learn through delay, or through failure with forceps, version, or craniotomy, that a Cæsarean section is demanded.

In the performance of the Cæsarean operation, I will also submit a few essential rules:

1. At once carefully determine the degree of obstruction, and operate early in labor—*i. e.*, as soon as the os is sufficiently dilated to permit drainage of the lochia, and before the rupture of the membranes. Delay is fatal.

2. Operate with full antiseptic precautions; for, of all abdominal operations, no other demands so absolutely that asepsis should be secured; but the spray over the abdomen is unnecessary.

3. Control hæmorrhage by compression of the cervix, either manually or with rubber tubing, but preferably manually.

4. Introduce numerous deep and superficial sutures so as to approximate accurately the muscular walls and serous surfaces of the peritoneum; but do not carry the sutures into the endometrium. The removal of a section of the muscular wall is unnecessary.

5. Carefully protect the peritoneum from contact with fluids, and make a careful toilet of that membrane, if perchance it has been soiled.

6. Administer ergotine hypodermically at the beginning of the operation.

[Remarks of Dr. Barnes, in the discussion on the paper of Dr. Meadows, which he read before the British Gynæcological Society 13th October, 1886, in which he favored the total abolition of craniotomy:]

Dr. Barnes said he disclaimed the part of apologist of craniotomy. He earnestly hoped the time would come when this revolting operation might be abolished. He had worked hard towards this end. Some of the most trying hours he had ever spent had been caused by the conflict between the duty of saving a mother at the sacrifice of her child, and of seeking the safety of the child at the imminent risk of the mother's life.

The problem would be nearer solution could we bring the Cæsarean section in some form to such perfection that the mortality attending it would be reduced to the mortality attending craniotomy. And here he disputed the validity of the statistics cited by Dr. Meadows. Dr. Meadows put the mortality of the Cæsarean section according to Sanger's method at 20 per cent. Admitting this for the purpose of argument, and admitting further that the operation might be so improved as to attain an even smaller mortality, he would still most emphatically protest against the statement that the necessary mortality attending craniotomy approached 20 per cent., or even 5 per cent., excluding the cases of extreme pelvic contraction which forbade the hope of extracting the child after craniotomy, and which all acknowledged should be treated by the Cæsarean section. Craniotomy, done under fair conditions, such as are postulated for the Cæsarean section—that is, done at a chosen time with due skill—did not involve any maternal mortality. This being so, we were driven to fall back upon the long recognized claim of the mother to be first considered. Now, assuming that twenty mothers out of one hundred, or even ten, or even five, were sacrificed to the Cæsarean section in order to save, say ninety children, might not those doomed mothers rightly plead their prior right to be

saved? Her life is in our hands; the circumstances hardly admit of her forming a just judgment. We have to act for her, and are we not bound to do our utmost to save her?

On the other hand, the case for the child is undoubtedly strong. By Cæsarean section there is a strong probability of its survival; under craniotomy it is certainly destroyed. But this does not represent the whole case. This is what happens: A woman, with a minor degree of contracted pelvis, not admitting of the delivery at term of a live child, is delivered by craniotomy. She recovers, and time after time in subsequent pregnancies, labor being induced at seven or eight months, she bears a live child. Add these children saved to the mother, and it might happen that the aggregate lives, maternal and infant, saved by craniotomy would compare favorably with the aggregate saved by Cæsarean section.

Undoubtedly very much had been gained, and much more would be gained, in the direction of lessening resort to craniotomy. Still he feared he must feel that the abolition of craniotomy was as yet an aspiration, and not an accomplished fact.